

CONWENTZIA HAGENI BANKS.

Life History Notes and Variations in Wing Venation.

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The species under consideration was first called to the attention of the Department of Entomology, of the Ohio Experiment Station, in November, 1912, by Mr. J. M. Keck, of Cleveland, who submitted the overwintering cocoons for determination. Dr. MacGillivray, to whom specimens were referred, pronounced them as belonging to the neuropterous family Coniopterygidæ. A little later, reared adults were sent to Mr. Nathan Banks, who gave the specific determination as *Conwentzia hageni* Banks.

At the time the material was taken the insect was in the larval stage, neatly encased in the double cocoon so well described by Quayle (Bul. 234, California Experiment Station). The gross appearance of the cocoon so closely resembles the compactly woven webs of some of the smaller spiders that it would be very easy to confuse the two, but as soon as a dissection is made, the double silk formation of the former very quickly separates them.

The cocoons were found most abundantly on a cherry tree some ten feet in height, the greater portion occurring in masses on the trunk. A considerable number, however, were to be found on the upper portions of the tree, where the crotches of the twigs seemed to be a favorite spot for their construction. Larvæ only were to be found, hence, it is safe to say the winter is passed in this stage. The three specimens upon which I was able to get exact records, changed from the larval to the adult stage in 16 days after being transferred to a temperature of 70° to 75°.

Since quantities of the overwintering eggs of the clover mite, *Bryobia pratensis* Garman, were found upon the tree which bore the Coniopterygid hibernacula, it is altogether likely that this pest supplies one of the principal sources of food for the insect. Quayle reports *Conwentzia hageni* Banks, feeding abundantly upon the citrus red spider, *Tetranychus mytilaspidis* Riley. Two visits were made last summer to Cleveland with the hope of learning something definite regarding the feeding habits of the larvæ; an additional visit was

made this winter in the hope of securing more of the hibernating material, but at no time were any of the insects to be found. The colony seemed to have disappeared entirely.

So much for general notes. The chief reason for directing your attention to the subject at this time is to point out some variations of wing venation which the writer observed, and in

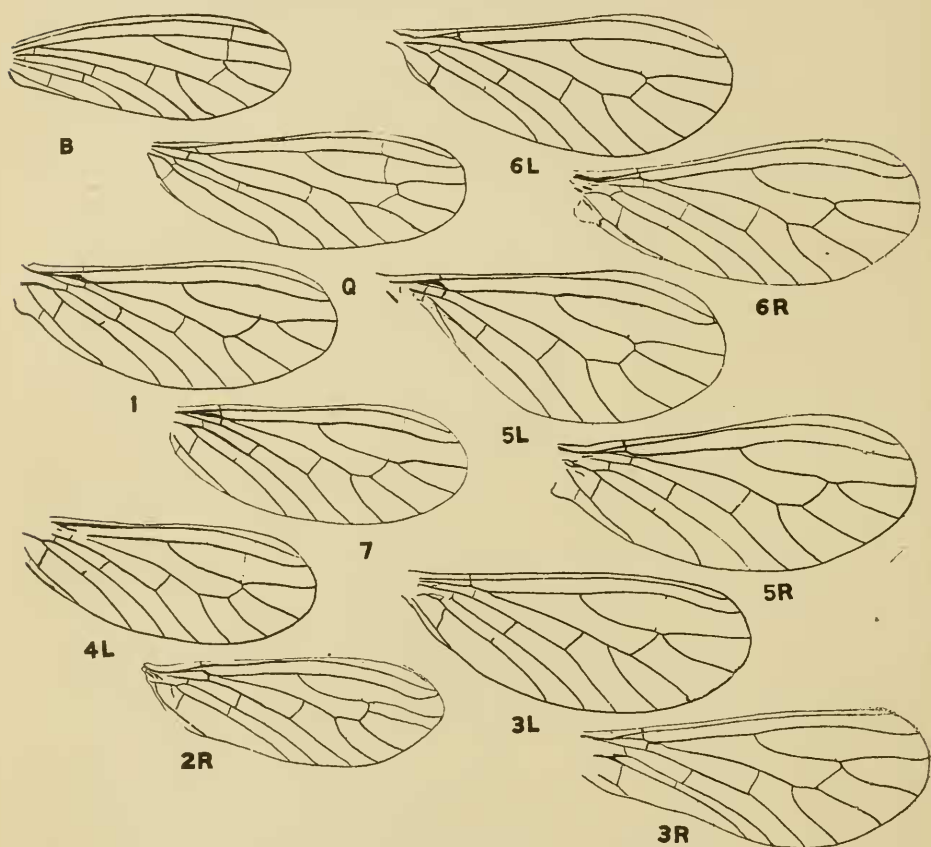


Fig. 1. Forewings of *Conwentzia hageni* Banks.

B. From Banks Proc. Ent. Soc. Wash., Vol. VIII; Q. From Quayle Univ. Cal. Publications, Bul. 234.

1, 7, 4L, 2R. One wing from each of four individuals in the author's collection. 6L and 6R, 5L and 5R, 3L and 3R. Left and right wings of three individuals in the author's collection.

so doing he does not wish to be misunderstood to be attempting to break down the validity of the specific determination, but wishes merely to record the variations from the standpoint of scientific interest. In the accompanying illustrations, B and

Q are copied from Banks, Proc. Ent. Soc. Wash., Vol. VIII, and Quayle, Univ. Cal. Publications, Bul. 234, respectively, while the remainder are from retraced photo-micrographic prints. Illustrations 1, 7, 4L, and 2R, are all from different insects. 6L and 6R; 5L and 5R; 3L and 3R, are three pairs of wings. All of my specimens were bred from the same lot of material and illustration No. 1 is made from a mounted slide used by Banks in making the determination.

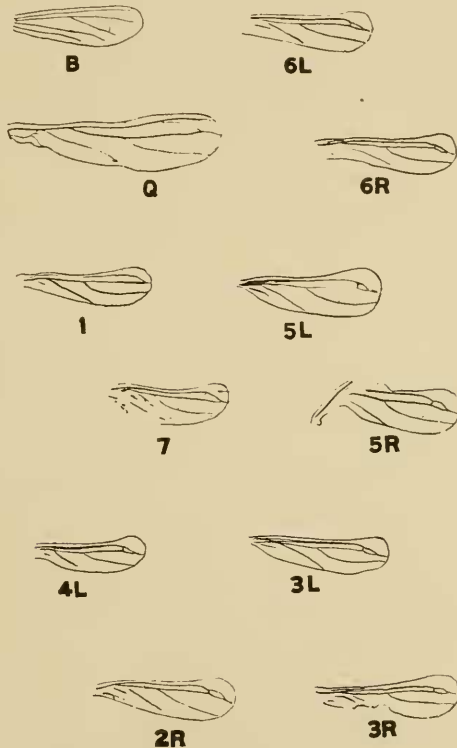


Fig. 2. Hindwings of *Conwentzia hageni* Banks.

The corresponding hindwings of the series of forewings shown in Fig. 1.

Banks refers to the variation in the placing of the cross-vein* from Sc to R1 and the one from the radial sector to M1+2. The illustrations of the fore wing by Banks and Quayle do not differ materially, excepting that the cross vein between

* Whether this is a cross vein or SC₂ is an unsolved point. It is possible that an examination of pupal wing parts would decide the matter.

Cu2 and the first anal vein is not shown by Quayle. In all of my specimens the cross vein from Sc to R1 is either exceedingly faint, or wanting entirely; sometimes being indicated by a thickening of R1 at the point where it might be expected to occur. Cross vein from R1 to radial sector is usually indicated by a sharply defined stub, extending about one-seventh of the distance upward from the radial sector, and is sometimes indicated above by a less sharply defined stub extending downward. The position of the cross vein from the radial sector to M1+2 is exceedingly variable, sometimes joining above to R2+3+4+5, and sometimes to R4+5. In some cases, such a difference occurs between the wings of the same insect as in the case of 5L and 5R; 3L and 3R. In the majority of cases the cross vein between Cu2 and the 1st A is represented by a short stub only, which arises from 1st A.

The variations in the venation of the hind wings are even more striking than in the fore wings, especially regarding the types illustrated by Banks and Quayle, when compared with my photographs. Banks illustrates a cross vein between R1 and the radial sector; Quayle shows a long oblique cross vein between Sc and R1; while in all my specimens Sc bends sharply downward towards the distal end and joins R1. Some wings have a short cross vein joining Sc and R1 near the point where the former joins the latter, forming a very peculiar little cell.

None of the longitudinal veins of the hind wing are shown by Banks as joining the outer margin which agrees with Enderlein's generic description of *Conwentzia*. Quayle shows radius and its branch; media and cubitus joining the margin. In my specimens Cu R1, if not joining the margin, approaches perilously near to it, while the radial sector unquestionably joins the margin and cubitus joins in some instances.

An additional and final comparison may be drawn between the comparative size of the fore and hind wings as represented by the drawings of Banks and Quayle and my photographic series. In the entire set of reproductions, the size ratio between the fore and hind wings is truthfully maintained, hence, by collating wings B, Q and 1, of the fore and hind series, it will be seen that no very great difference obtains regarding the size of the forewings, whereas the hind wing of Quayle's specimen is markedly larger than either of the others.